PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Dissemination of evidence in pediatric emergency medicine: a quantitative descriptive evaluation of a 16-week social media promotion
AUTHORS	Gates, Allison; Featherstone, Robin; Shave, Kassi; Scott, Shannon; Hartling, Lisa

VERSION 1 – REVIEW

REVIEWER	Teresa M. Chan, MD, FRCPC, MHPE McMaster University, Hamilton, ON, Canada
REVIEW RETURNED	24-Feb-2018

GENERAL COMMENTS	Overall this is a well written paper. Thank you for the opportunity to review it. To situate myself, I am a clinician education and emergency physician with a substantial research portfolio in online teaching/learning/KT. While I believe your paper is well constructed, I will make some suggestions below to enhance your paper: Background: I would suggest that the knowledge translation gap is a much broader problem around with world and not only restricted to pediatric emergency care. I would suggest you broaden these first statements to make sure that most readers of BMJ can see how it applies to their specialty or location. I would also hesitate to highlight too much about the under-resourcing of community or generalist EDs, as your present study doesn't at all help with this gap. At the first mention of FOAM, I would suggest that you replace your present citations (8/9) with the following citations that support your assertion: 1. Cadogan, M., Thoma, B., Chan, T. M., & Lin, M. (2014). Free Open Access Meducation (FOAM): the rise of emergency medicine and critical care blogs and podcasts (2002-2013). Emergency Medicine Journal : EMJ, 1–2. http://doi.org/10.1136/emermed-2013-203502 2. Thoma, B., Joshi, N., Trueger, N. S., Chan, T. M., & Lin, M. (2014). Five strategies to effectively use online resources in emergency medicine. Annals of Emergency Medicine, 64(4), 392–395. http://doi.org/10.1016/j.annemergmed.2014.05.029 3. Purdy, E., Thoma, B., Bednarczyk, J., Migneault, D., & Sherbino, J. (2015). The use of free online educational resources by Canadian emergency medicine residents and program directors. CJEM, 1717(22), 101–106. http://doi.org/10.1017/cem.2014.73 4. Nickson, C. P., & Cadogan, M. D. (2014). Free Open Access Medical education (FOAM) for the emergency physician. Emergency Medicine Australasia : EMA, 26(1), 76–83.

	http://doi.org/10.1111/1742-6723.12191 5. Chan, T., Seth Trueger, N., Roland, D., & Thoma, B. (2018). Evidence-based medicine in the era of social media: Scholarly engagement through participation and online interaction. Canadian Journal of Emergency Medicine, 20(1), 3–8. http://doi.org/10.1017/cem.2016.407 6. Thurtle, N., Banks, C., Cox, M., Pain, T., & Furyk, J. (2015). Free Open Access Medical Education resource knowledge and utilisation amongst Emergency Medicine trainees: A survey in four countries. African Journal of Emergency Medicine, 6(December), 12–17. http://doi.org/http://dx.doi.org/10.1016/j.afjem.2015.10.005 6. Lin, M., Joshi, N., Hayes, B. D., & Chan, T. M. (2017). Accelerating Knowledge Translation: Reflections From the Online ALiEM-Annals Global Emergency Medicine Journal Club Experience. Annals of Emergency Medicine, 69(4), 469–474. http://doi.org/10.1016/j.annemergmed.2016.11.010 7. Mallin, M., Schlein, S., Doctor, S., Stroud, S., Dawson, M., & Fix, M. (2014). A survey of the current utilization of asynchronous education among emergency medicine residents in the United States. Academic Medicine: Journal of the Association of American Medical Colleges, 89(4), 598–601. http://doi.org/10.1097/ACM.0000000000000170 8. Chan, T. M., Stukus, D., Leppink, J., Duque, L., Bigham, B. L., Mehta, N., & Thoma, B. (2017). Social Media and the 21st-Century Scholar: How You Can Harness Social Media to Amplify Your Career. Journal of the American College of Radiology, 1–7. http://doi.org/10.1016/j.jacr.2017.09.025 (NB: Generally, I would replace citation 8 with the Thoma 5 Strategies or the 2018 Editorial on social media and evidence-based medicine papers above, since the paper you have cited is about a peer review system for blogs, which is not a strong support for the point in your second paragraph.) In the 2nd last paragraph of the introduction or within the methods section, I am wondering if you can further clarify why these two organizations were selected? Why not just one account and not the other? What is the rationale behind doing both? Again later, why publish on the Cochrane Child Health blog? What is the rationale? This is an example of a recent paper which explains the rationale for their choices well: Hoang, J. K., McCall, J., Dixon, A. F., Fitzgerald, R. T., & Gaillard, F. (2015). Using Social Media to Share Your Radiology Research: How Effective Is a Blog Post? Journal of the American College of Radiology, 12(7), 760–765. http://doi.org/10.1016/j.jacr.2015.03.048 Methods: I found it interesting that you had an a prior hypothesis. The protocol you mention should be added as either a citation (if you previously published it) or an appendix if you have not. Having not read the protocol I am curious as to how you arrived at your targets. An Altmetric score increase of 10, for instance, seems very low since you were tweeting from 4 accounts (which will increase the paper's score by 2-4, and then the blog post is usually worth around 4-5 points). This means, that you only needed 1-2 people (e.g. your authorship pool) to retweet using their personal accounts and the Altmetric score could be increased quite easily to reach the target. I am confused about why the patient involvement paragraph is

	stated the way it is - it is framed quite negatively. I am not sure what the dissemination statement about academic conferences has to with patient involvement. Ironically, I think you will receive more patient involvement via social media. Data Collection: I hate it when reviewers do this, but I truly wish you had created a hashtag and then tracked it using Symplur analytics for your campaign. It would have been quite interesting to see what your reach was - native Twitter analytics are on thing, but they don't provide you with your true disseminative potential. Generally you should stick to using the term "Altmetric" since alternative metric would be the generic name, but you are specifically using the "Altmetric score" which is like Twitter - a proper noun for a specific item. Please carefully review your paper (esp methods --> analysis sections)- several instances it is listed as alternative metrics, when you specifically are trying to speak about the specific proprietary score. The troublesome part of the analytic plan is that it does not account for organic growth of the Twitter followership or Website viewership. As you did not have a comparator website (or websites) to determine whether this intervention was the cause of the growth, at the very least based on historical data, one could perform a regression analysis and calculate what the anticipated "organic" growth would have been for all the accounts/blogs/websites. In table 3, I would suggest decluttering the table with removing the goals columns. So I would either: 1) List the % above your goal; 2) have the goal as a caption and * the months you surpassed the goal. Table 5, I am confused how the total full text downloads can go down. You should recheck these numbers - do you mean full text downloads per month? Discussion One of the challenges of this paper is that, as the authors admit, many investigations of text-based tweeting exist. I would encourage the authors to cite more than just citation 24 in their "nod to the known" in the discussion. There is the experiment run by the journal Circulation -(Fox CS, Bonaca MA, Ryan JJ, Massaro JM, Barry K, Loscalzo J. A randomized trial of social media from circulation. Circulation 2015;131:28-33.) or these papers by radiologists: - Hawkins, C. M., Hillman, B. J., Carlos, R. C., Rawson, J. V, Haines, R., & Duszak, R. (2014). The impact of social media on readership of a peer-reviewed medical journal. Journal of the American College of Radiology, 11(11), 1038–43. http://doi.org/10.1016/j.jacr.2014.07.029) - Hoang, J. K., McCall, J., Dixon, A. F., Fitzgerald, R. T., & Gaillard, F. (2015). Using Social Media to Share Your Radiology Research: How Effective Is a Blog Post? Journal of the American College of Radiology, 12(7), 760–765. http://doi.org/10.1016/j.jacr.2015.03.048 To augment your current discussion about whether tweets increase full text reads I would add: Thoma, B., Murray, H., Huang, S. Y. M., et al. (2017). The impact of social media promotion with infographics and podcasts on research dissemination and readership. CJEM, In Press 0(0), 1–7. http://doi.org/10.1017/cem.2017.394. as a contrast to Andrew

	Ibrahim's work with visual abstracts. I think you could expand on the role of influence on the implications section. For instance, it would be important to note whether any of your team members are considered influencers of other physicians. A recent network analysis on emergency physicians has certainly shown that not all users are equal in their ability to drive traffic. See: Riddell, J., Brown, A., Kovic, I., & Jauregui, J. (2017). Who are the most influential Emergency Medicine Physicians on Twitter? Western Journal of Emergency Medicine, Online First. http://doi.org/10.5811/westjem.2016.11.31299 Thank you once again for the opportunity to help provide feedback and shape this paper.

REVIEWER	Damian Roland Leicester University and Hospitals, UK
REVIEW RETURNED	27-Feb-2018

GENERAL COMMENTS	Many thanks for submitting this thorough paper. This is a good evaluation and is a useful benchmarker for other groups (outside of paediatrics) wanting to undertake similar endeavours. A few comments below: I do think it is important the abstract represents that fact that download velocity of Cochrane reviews fell, rather than increased. "The promotion followed an a priori protocol" - can this be shared in an appendix. it would be nice to see this. The 15% seems reasonable but unlike the other measures I can't see the baseline reason for chosing this (apologies if I have missed this in the paper) I am not sure if you are actively tweeting out the links to papers you can use altmetrics as an outcome measure. Some of the altmetric is made up of twitter sharing which by definition you were promoting? I think probably reasonable to include the change but I do think you need to include this a potential limitation. The discussion is a full and conclusive account. The only thing I think that is missing is a comment on the development of communities of practice. I am clearly biased as this is a research interest of mine but I do think that it community of practice element is a powerful part of social media use and if you don't create one it becomes more difficult for people to engage in wider practice discussion. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5533942/ Well done again on a good paper.

VERSION 1 – AUTHOR RESPONSE

Responses to Reviewer 1

1. Overall this is a well written paper. Thank you for the opportunity to review it. To situate myself, I am a clinician education and emergency physician with a substantial research portfolio in online

teaching/learning/KT. While I believe your paper is well constructed, I will make some suggestions below to enhance your paper:

Thank you.

2. Background: I would suggest that the knowledge translation gap is a much broader problem around with world and not only restricted to pediatric emergency care. I would suggest you broaden these first statements to make sure that most readers of BMJ can see how it applies to their specialty or location. I would also hesitate to highlight too much about the under-resourcing of community or generalist EDs, as your present study doesn't at all help with this gap.

Within the revised manuscript, we have edited the opening paragraph to include broader statements with regard to the knowledge translation gap, as follows: “The slow or incomplete translation of evidence into clinical practice undermines healthcare professionals’ (HCPs’) ethical obligation to provide patients with the highest standard of care while avoiding undue risk of harm.[1] Globally and across medical specialties, evidence-to-practice gaps that lead patients to receive substandard care nevertheless remain common. A systematic review of survey data found that median adherence to evidence-based clinical practice guidelines was just 36% (interquartile range, 30-56%).[2]”

We have maintained some content related to pediatric emergency care to set the context for our study. We have removed references to under-resourcing of general emergency departments, as we agree that our study does not address this gap.

3. At the first mention of FOAM, I would suggest that you replace your present citations (8/9) with the following citations that support your assertion:

1. Cadogan, M., Thoma, B., Chan, T. M., & Lin, M. (2014). Free Open Access Meducation (FOAM): the rise of emergency medicine and critical care blogs and podcasts (2002-2013). Emergency Medicine Journal : EMJ, 1–2. http://doi.org/10.1136/emermed-2013-203502

2. Thoma, B., Joshi, N., Trueger, N. S., Chan, T. M., & Lin, M. (2014). Five strategies to effectively use online resources in emergency medicine. Annals of Emergency Medicine, 64(4), 392–395. http://doi.org/10.1016/j.annemergmed.2014.05.029

3. Purdy, E., Thoma, B., Bednarczyk, J., Migneault, D., & Sherbino, J. (2015). The use of free online educational resources by Canadian emergency medicine residents and program directors. CJEM, 1717(22), 101–106. http://doi.org/10.1017/cem.2014.73

4. Nickson, C. P., & Cadogan, M. D. (2014). Free Open Access Medical education (FOAM) for the emergency physician. Emergency Medicine Australasia : EMA, 26(1), 76–83. http://doi.org/10.1111/1742-6723.12191

5. Chan, T., Seth Trueger, N., Roland, D., & Thoma, B. (2018). Evidence-based medicine in the era of social media: Scholarly engagement through participation and online interaction. Canadian Journal of Emergency Medicine, 20(1), 3–8. http://doi.org/10.1017/cem.2016.407

6. Thurtle, N., Banks, C., Cox, M., Pain, T., & Furyk, J. (2015). Free Open Access Medical Education resource knowledge and utilisation amongst Emergency Medicine trainees: A survey in four countries. African Journal of Emergency Medicine, 6(December), 12–17. http://doi.org/http://dx.doi.org/10.1016/j.afjem.2015.10.005

7. Lin, M., Joshi, N., Hayes, B. D., & Chan, T. M. (2017). Accelerating Knowledge Translation: Reflections From the Online ALiEM-Annals Global Emergency Medicine Journal Club Experience. Annals of Emergency Medicine, 69(4), 469–474. http://doi.org/10.1016/j.annemergmed.2016.11.010

8. Mallin, M., Schlein, S., Doctor, S., Stroud, S., Dawson, M., & Fix, M. (2014). A survey of the current utilization of asynchronous education among emergency medicine residents in the United States. Academic Medicine: Journal of the Association of American Medical Colleges, 89(4), 598–601. http://doi.org/10.1097/ACM.0000000000000170

9. Chan, T. M., Stukus, D., Leppink, J., Duque, L., Bigham, B. L., Mehta, N., & Thoma, B. (2017). Social Media and the 21st-Century Scholar: How You Can Harness Social Media to Amplify Your Career. Journal of the American College of Radiology, 1–7. http://doi.org/10.1016/j.jacr.2017.09.025

(NB: Generally, I would replace citation 8 with the Thoma 5 Strategies or the 2018 Editorial on social media and evidence-based medicine papers above, since the paper you have cited is about a peer review system for blogs, which is not a strong support for the point in your second paragraph.)

Thank you for this excellent list of resources. As recommended, within the revised manuscript we have replaced reference #8 with the following two references: Thoma et al. Ann Emerg Med. 2014;64(4):392-5 and Chan et al. CJEM. 2018;20(1):3-8.

4. In the 2nd last paragraph of the introduction or within the methods section, I am wondering if you can further clarify why these two organizations were selected? Why not just one account and not the other? What is the rationale behind doing both?

Thank you for identifying this point for clarification. To explain, we have added the following content to our Introduction: “We used social media to disseminate and promote the uptake of TREKK knowledge products and Cochrane systematic reviews on pediatric emergency medicine topics. ARCHE researchers and staff are involved in the administration of Cochrane Child Health and in the development and dissemination of TREKK knowledge products for HCPs, patients, and families. Because Cochrane systematic reviews provide the foundation for many of the TREKK knowledge products, including the BLRs for HCPs, we promoted the reviews and TREKK knowledge products concurrently to advocate for the use and improve the uptake of these complementary products.”

5. Again later, why publish on the Cochrane Child Health blog? What is the rationale? This is an example of a recent paper which explains the rationale for their choices well:
Hoang, J. K., McCall, J., Dixon, A. F., Fitzgerald, R. T., & Gaillard, F. (2015). Using Social Media to Share Your Radiology Research: How Effective Is a Blog Post? Journal of the American College of Radiology, 12(7), 760–765. http://doi.org/10.1016/j.jacr.2015.03.048

Thank you for the informative example. Within our Methods, we have added detail as to why we chose to include blog posts as part of our promotion, as follows: “The intent of our blog posts was to provide concise, informative summaries of the findings of child health Cochrane systematic reviews that would be more appealing to our target audience. Freely accessible plain language summaries were introduced with the aim of improving the uptake of Cochrane systematic reviews by overcoming barriers including: the length of the reviews and the use of scientific jargon, which make them impractical to read and difficult to understand for many HCPs and health consumers; and challenges related to the technical and financial access to the full text documents, which are not open access.[19] Studies in the specialties of surgery and radiology have shown that blogging about research publications is an effective means to improve the dissemination and reach of the key messages and of the publications themselves.[20,21]”

6. Methods: I found it interesting that you had an a prior hypothesis. The protocol you mention should be added as either a citation (if you previously published it) or an appendix if you have not. Having not read the protocol I am curious as to how you arrived at your targets. An Altmetric score increase of 10, for instance, seems very low since you were tweeting from 4 accounts (which will increase the paper's score by 2-4, and then the blog post is usually worth around 4-5 points). This means, that you only needed 1-2 people (e.g. your authorship pool) to retweet using their personal accounts and the Altmetric score could be increased quite easily to reach the target.

Our protocol is not published. Within the revised manuscript, we have added it as Supplementary File 1 so that it will be available to interested readers.

For full transparency, we have also added information regarding how we came to our planned targets to the Methods, as follows: “Our goals were based on benchmark performance indicators established during a previous social media promotion undertaken by our centre in the Fall of 2015 to promote Cochrane summaries, and on historical performance of the blog. During the Fall 2015 promotion, followers to the @TREKKca increased by 15% (from 452 to 521) and the Altmetric scores for the promoted Cochrane systematic reviews increased by a mean 10 points. Between inception (2013) and 2015, 35 posts were published on the Cochrane Child Health Blog. These posts received 10,109 views, or 289 views per post. We therefore aimed to accrue 289 new views per blog post during the promotional period, added to the baseline views for 2016 (1453 views). In the absence of a priori performance data, we set modest goals for visits to the TREKK website and clicks to the TREKK BLRs.”

7. I am confused about why the patient involvement paragraph is stated the way it is - it is framed quite negatively. I am not sure what the dissemination statement about academic conferences has to with patient involvement. Ironically, I think you will receive more patient involvement via social media.

The patient involvement statement is a requirement of the journal. We regret that in our attempt to be fully transparent, our statement regarding patient involvement came across negatively. Within our revised manuscript, we have edited the Patient Involvement section and we hope that it now comes across more positively: “Although we did not involved patients in the development of the research questions or choice of outcome measures, health consumers were one of the target audiences for our promotion. We incorporated features into the promotion that would enhance its appeal to health consumers, including the plain language summaries and blog shots. We disseminated the findings of this study to our followers, including health consumers, via image-based tweets from the four Twitter accounts.”

8. Data Collection: I hate it when reviewers do this, but I truly wish you had created a hashtag and then tracked it using Symplur analytics for your campaign. It would have been quite interesting to see what your reach was - native Twitter analytics are on thing, but they don't provide you with your true disseminative potential.

Unfortunately, we were not aware of Symplur when we planned our promotion. Within the revised manuscript, we have added the following statement to the Discussion to account for this limitation: “A challenge for organisations who want to undertake evaluations of social media for knowledge dissemination in health is that, to our knowledge, no guidelines exist on: 1. how to set goals, 2. what is reasonable to achieve, 3. which social media metrics can or should be tracked, and 4. what should be considered “successful”. In the absence of guidance, we developed specific goals based on historical measures of performance and decided on quantitative social media metrics to evaluate their achievement. As researchers whose expertise does not lie in media communications, we overlooked alternative measures of performance, e.g., Symplur analytics to measure the reach of a promotion-specific hashtag, which may have provided a better indication of the promotion’s disseminative

potential (as recommended by an expert peer reviewer). Because many organisations do not have specialised personnel devoted to managing social media profiles, practical guidance for undertaking effective and efficient evaluations of their promotions is needed.“

9. Generally you should stick to using the term "Altmetric" since alternative metric would be the generic name, but you are specifically using the "Altmetric score" which is like Twitter - a proper noun for a specific item. Please carefully review your paper (esp methods --> analysis sections)- several instances it is listed as alternative metrics, when you specifically are trying to speak about the specific proprietary score.

Thank you for the information. Within the revised manuscript, we have changed all instances of “alternative metric” to “Altmetric”.

10. The troublesome part of the analytic plan is that it does not account for organic growth of the Twitter followership or Website viewership. As you did not have a comparator website (or websites) to determine whether this intervention was the cause of the growth, at the very least based on historical data, one could perform a regression analysis and calculate what the anticipated "organic" growth would have been for all the accounts/blogs/websites.

You are correct in that the design of our study did not allow us to ascertain to what extent our metrics were influenced by the organic growth of Twitter followership or blog and website viewership. We have modified our Strengths and Limitations section to account for this (fourth bullet point): “Our study does not account for the organic growth of Twitter followership and website viewership.”

11. In table 3, I would suggest decluttering the table with removing the goals columns. So I would either: 1) List the % above your goal; 2) have the goal as a caption and * the months you surpassed the goal.

Within the revised manuscript, we have removed the Goals columns from Table 3. We have included footnotes for the months during which we achieved or surpassed our goals.

12. Table 5, I am confused how the total full text downloads can go down. You should recheck these numbers - do you mean full text downloads per month?

As noted in the footnote to the table, our baseline for full text downloads was the average weekly downloads for the previous year, multiplied by 16 to obtain the average number of downloads in a 16-week period during the year prior to the promotion. We compared the full text downloads over the course of the 16-week campaign to the 16-week average for the previous year. Within the revised manuscript, we have changed the column titled “percent change” to “percent difference” and modified the text accordingly to avoid confusion.

13. Discussion: One of the challenges of this paper is that, as the authors admit, many investigations of text-based tweeting exist. I would encourage the authors to cite more than just citation 24 in their "nod to the known" in the discussion. There is the experiment run by the journal Circulation -(Fox CS, Bonaca MA, Ryan JJ, Massaro JM, Barry K, Loscalzo J. A randomized trial of social media from circulation. Circulation 2015;131:28-33.) or these papers by radiologists:
- Hawkins, C. M., Hillman, B. J., Carlos, R. C., Rawson, J. V, Haines, R., & Duszak, R. (2014). The impact of social media on readership of a peer-reviewed medical journal. Journal of the American College of Radiology, 11(11), 1038–43. http://doi.org/10.1016/j.jacr.2014.07.029)
- Hoang, J. K., McCall, J., Dixon, A. F., Fitzgerald, R. T., & Gaillard, F. (2015). Using Social Media to Share Your Radiology Research: How Effective Is a Blog Post? Journal of the American College of Radiology, 12(7), 760–765. http://doi.org/10.1016/j.jacr.2015.03.048

Thank you for informing us of these references. Within the revised manuscript, we have added them as support to our discussion of text-based tweeting.

14. To augment your current discussion about whether tweets increase full text reads I would add: Thoma, B., Murray, H., Huang, S. Y. M., et al. (2017). The impact of social media promotion with infographics and podcasts on research dissemination and readership. CJEM, In Press 0(0), 1–7. http://doi.org/10.1017/cem.2017.394. as a contrast to Andrew Ibrahim's work with visual abstracts.

Thank you for this informative publication. Within our revised manuscript, we have referenced Thoma et al. (2017)'s work in our discussion about full text reads of the Cochrane systematic reviews: "It is plausible in our study that our followers accessed only the abstract and Summary of Findings tables and did not download the full text.[39] Thoma et al. (2017) reported similar results for a social media promotion (tweets and podcasts) of research published in the Canadian Journal of Emergency Medicine, whereby Altmetric scores and abstract readership, but not full text readership, significantly increased.[39]"

15. I think you could expand on the role of influence on the implications section. For instance, it would be important to note whether any of your team members are considered influencers of other physicians. A recent network analysis on emergency physicians has certainly shown that not all users are equal in their ability to drive traffic. See: Riddell, J., Brown, A., Kovic, I., & Jauregui, J. (2017). Who are the most influential Emergency Medicine Physicians on Twitter? Western Journal of Emergency Medicine, Online First. http://doi.org/10.5811/westjem.2016.11.31299

Thank you once again for this informative publication. Within the revised manuscript, we have added the following paragraph about influence in the Implications for Research and Practice section: "An analysis of the #FOAMed online community of practice showed that it was organized around highly influential members who were responsible for 73% of all tweets.[47] On Twitter, these opinion leaders account for a small proportion of all users[48] but they can impact conversations substantially more than ordinary users.[48,49] Opinion leaders are likeable, trustworthy, educationally influential,[48,49] and highly credible,[50] and have greater social participation compared to their followers.[51] Users may become opinion leaders because they have a large cohort of followers, their followers themselves are highly influential, or they have a unique group of followers to help disseminate information.[52] In the context of our study, no member of our research team is considered an influencer of emergency medicine physicians.[52] Garnering the attention of opinion leaders, however, could be a promising strategy to optimizing the dissemination and uptake of social media messages. Conversely, in the hands of highly influential users it is also possible for superficial or inaccurate messages to be rapidly and widely disseminated.[52] Empirical evaluations of the behaviour of highly influential Twitter users may inform approaches to optimise the uptake of shared content."

16. Thank you once again for the opportunity to help provide feedback and shape this paper.

Thank you for helping to strengthen our manuscript.

Response to Reviewer 2

1. Many thanks for submitting this thorough paper. This is a good evaluation and is a useful benchmarker for other groups (outside of paediatrics) wanting to undertake similar endeavours. A few comments below:

Thank you. Within our revised manuscript, we have added your statement about providing a benchmark for other groups to our Strengths and Limitations section.

2. I do think it is important the abstract represents that fact that download velocity of Cochrane reviews fell, rather than increased.

Thank you for the suggestion. Taking a look a the data, nine of the reviews received more downloads compared to baseline, while the remaining seven reviews received fewer. The mean difference (SD) was +4.0 (22.0%). To more accurately reflect this finding, we have included greater detail in the abstract as to the full text downloads during the 16-week promotional period: “The mean number of full text downloads for the promotion period was higher for 9 and lower for 7 SRs compared to the 16-week average for the previous year (mean difference (SD), +4.0(22.0%)).”

3. "The promotion followed an a priori protocol" - can this be shared in an appendix. it would be nice to see this.

In response to your comment and to the comment from Reviewer 1, we have added our a priori protocol as Supplementary File 1 to the revised manuscript.

4. The 15% seems reasonable but unlike the other measures I can't see the baseline reason for chosing this (apologies if I have missed this in the paper)

You are correct in that this information was missing from the original manuscript. In response to your comment and the comment from Reviewer 1, we have added our a priori protocol as Supplementary File 1 to the revised manuscript. We have also added more detail to the Methods section regarding how our goals were determined: “Our goals were based on benchmark performance indicators established during a previous social media promotion undertaken by our centre in the Fall of 2015 to promote Cochrane summaries, and on historical performance of the blog. During the Fall 2015 promotion, followers to the @TREKKca increased by 15% (from 452 to 521) and the Altmetric scores for the promoted Cochrane systematic reviews increased by a mean 10 points. Between inception (2013) and 2015, 35 posts were published on the Cochrane Child Health Blog. These posts received 10,109 views, or 289 views per post. We therefore aimed to accrue 289 new views per blog post during the promotional period, added to the baseline views for 2016 (1453 views). In the absence of a priori performance data, we set modest goals for visits to the TREKK website and clicks to the TREKK BLRs.”

5. I am not sure if you are actively tweeting out the links to papers you can use altmetrics as an outcome measure. Some of the altmetric is made up of twitter sharing which by definition you were promoting? I think probably reasonable to include the change but I do think you need to include this a potential limitation.

You are correct. We cannot ascertain to what extent our own tweets contributed to the increases in Altmetric scores. Within the revised manuscript, we have added a statement to the Strengths and Limitations section to account for this (fifth bullet point): “We cannot ascertain to what extent our own tweets contributed to increases in Altmetric scores. “

6. The discussion is a full and conclusive account. The only thing I think that is missing is a comment on the development of communities of practice. I am clearly biased as this is a research interest of mine but I do think that it community of practice element is a powerful part of social media use and if you don't create one it becomes more difficult for people to engage in wider practice discussion. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5533942/
Well done again on a good paper.

Thank you for this informative article. In response to your comment and the comment from Reviewer 1, we have added a discussion of communities of practice and of influence on social media to the Implications for Research and Practice section: “The significance of communities of practice for knowledge sharing and professional development in social media has only begun to be investigated. Traditionally, communities of practice develop around the interests of their members, and provide a vehicle to share expertise in an area of practice.[44,45] Communities of practice can improve patient care by fostering engagement, collaboration, learning, knowledge, and reflection.[46] Social media provide the opportunity to more easily and efficiently build networks of HCPs who share a common interest and desire to share their thoughts and experiences.[45] Developing new and leveraging existing networks may therefore be a promising approach to using social media to improve the uptake of knowledge products and inspire informed conversations and changes to practice.[45] Guidance for how to best develop and build online networks would be helpful to organisations wishing to move evidence into practice via the wide dissemination of knowledge tools.

An analysis of the #FOAMed online community of practice showed that it was organized around highly influential members who were responsible for 73% of all tweets.[47] On Twitter, these opinion leaders account for a small proportion of all users[48] but they can impact conversations substantially more than ordinary users[48,49]. Opinion leaders are likeable, trustworthy, educationally influential,[48,49] and highly credible,[50] and have greater social participation compared to their followers.[51] Users may become opinion leaders because they have a large cohort of followers, their followers themselves are highly influential, or they have a unique group of followers to help disseminate information.[52] In the context of our study, no member of our research team is considered an influencer of emergency medicine physicians.[52] Garnering the attention of opinion leaders, however, could be a promising strategy to optimizing the dissemination and uptake of social media messages. Conversely, in the hands of highly influential users it is also possible for superficial or inaccurate messages to be rapidly and widely disseminated.[52] Empirical evaluations of the behaviour of highly influential Twitter users may inform approaches to optimise the uptake of shared content.”

Formatting Amendments

1. Supplementary file format
Please re-upload your supplementary files in PDF format.

Along with our revised manuscript file, we have uploaded the supplementary files in PDF format.

VERSION 2 – REVIEW

REVIEWER	Teresa M. Chan, MD, FRCPC, MHPE McMaster University, Hamilton, ON, Canada
REVIEW RETURNED	27-Mar-2018

GENERAL COMMENTS	Thank you for making all of these revisions. I do believe that the paper reads very well at this point and will certainly be value added to the emerging literature on this topic.

REVIEWER	Damian Roland Leicester Hospitals and University, UK
REVIEW RETURNED	03-Apr-2018

GENERAL COMMENTS	Thanks for your thorough review of the paper and the points raised by myself and the other reviewer. My only remaining comments remains around the altmetric. While the contribution of your tweets to the total number is difficult to quantify you can ascertain the percentage of tweets that came from your account versus the total number Below are two links for two of the papers. You will need to register with altmetric to get the full results. It would be useful to know what proportion of tweets about the articles you generated de novo... https://www.altmetric.com/details/1987424/twitter https://www.altmetric.com/details/1404063/twitter

VERSION 2 – AUTHOR RESPONSE

Responses to Reviewer 1

1. Thank you for making all of these revisions. I do believe that the paper reads very well at this point and will certainly be value added to the emerging literature on this topic.

You are welcome. Thank you for taking the time to review our manuscript again.

Response to Reviewer 2

1. Thanks for your thorough review of the paper and the points raised by myself and the other reviewer.

You are welcome. Thank you for taking the time to review our manuscript again.

2. My only remaining comments remains around the altmetric. While the contribution of your tweets to the total number is difficult to quantify you can ascertain the percentage of tweets that came from your account versus the total number.

Below are two links for two of the papers. You will need to register with altmetric to get the full results. It would be useful to know what proportion of tweets about the articles you generated de novo...

https://www.altmetric.com/details/1987424/twitter

https://www.altmetric.com/details/1404063/twitter

Thank you for this suggestion. We have added information about the contribution of our tweets to the total tweets to the results section of our revised manuscript, as follows: “Data from altmetric.com show that during the campaign our own tweets comprised 57.0% of all tweets related to the Cochrane systematic reviews that we promoted (Supplementary File 5). Our own tweets comprised a larger proportion of the total tweets for the reviews on multisystem trauma (58 to 77%), fractures (59 to 68%), and intussusception (61%) compared to those on croup (44 to 55%), procedural pain (42%), and gastroenteritis (43 to 46%).”

We also added a paragraph to elaborate on these results to the Implications for Research and Practice section of our Discussion, as follows:

“Since we could not ascertain the contribution of our own social media activity to the increases in Almetric scores, we calculated how many of the total tweets for each review during the promotional period were our own (Supplementary File 5). These data, along with our Twitter analytics for the @TREKKca and @Cochrane_Child accounts, made it clear that our promotion performed better for some topics compared to others. For example, our own tweets made up far more of the total tweeting activity for the reviews on topics related to multisystem trauma, fractures, and intussusception compared to those on croup, procedural pain, and gastroenteritis. Our Twitter analytics also reflected greater user interaction with our tweets for the latter three topics. It is possible that reviews on croup, procedural pain, and gastroenteritis are more appealing to our followers. Reviews on these relatively common pediatric conditions may also appeal to a broader audience (e.g., parents, family medicine physicians). Our findings demonstrate the value in knowing one’s followers and tailoring messages to their interests when planning a social media promotion.”